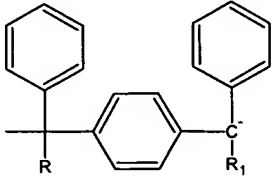
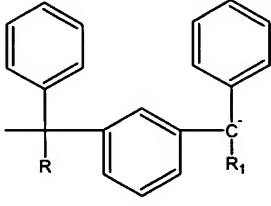


What is claimed is:

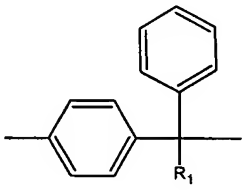
1. A polymer comprising a polymer chain that comprises (a) a plurality of constitutional units that correspond to cationically polymerizable monomer species and (b) an end-cap

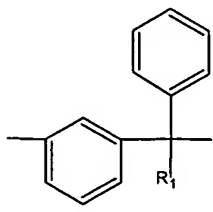
comprising a  group or a  group, where R is a branched or unbranched alkyl group containing from 1 to 20 carbons and R₁ is a branched, unbranched, or cyclic alkyl group or an aryl group, containing from 1 to 20 carbons.

2. The polymer of claim 1, wherein R₁ is n-pentyl or 2-methyl-butyl.
3. The polymer of claim 2, wherein R is methyl or ethyl.
4. The polymer of claim 1, wherein the number average molecular weight of said polymer ranges from 5,000 to 500,000.
5. The polymer of claim 1, wherein said chain comprises a plurality of constitutional units that correspond to two or more differing cationically polymerizable monomer species.
6. The polymer of claim 1, wherein said polymer comprises two or more of said polymer chains
7. The polymer of claim 1, wherein said constitutional units correspond to isobutylene.

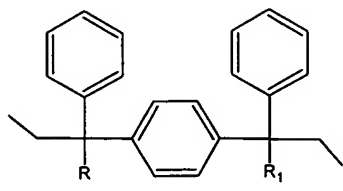
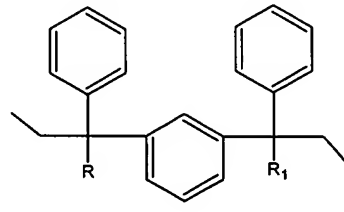
8. A copolymer comprising:

- (a) a first polymer block that comprises a plurality of constitutional units that correspond to cationically polymerizable monomer species,
- (b) a second polymer block that comprises a plurality of constitutional units that correspond to anionically polymerizable monomer species, and
- (c) a linking moiety linking said first block polymer region with said second block

polymer region, said linking moiety selected from a  group and a

 group, where R₁ is a branched, unbranched, or cyclic alkyl group or an aryl group, containing from 1 to 20 carbons.

9. The copolymer of claim 8, wherein said said linking moiety comprises a

 group or a  group, where R is a branched or unbranched alkyl group containing from 1 to 20 carbons, and where R₁ is a branched, unbranched, or cyclic alkyl group or an aryl group, containing from 1 to 20 carbons.

10. The copolymer of claim 9, wherein R is methyl or ethyl, and R₁ is n-pentyl or 2-methyl-butyl.

11. The copolymer of claim 8, wherein the number average molecular weight of said polymer ranges from 10,000 to 1,000,000.

12. The copolymer of claim 8, wherein said first polymer block comprises a plurality of constitutional units that correspond to two or more differing cationically polymerizable monomer species.

13. The copolymer of claim 8, wherein said first polymer block comprises a plurality of constitutional units that correspond to isobutylene.

14. The copolymer of claim 8, wherein said second polymer block comprises a plurality of constitutional units that correspond to two or more differing anionically polymerizable monomer species.

15. The copolymer of claim 8, wherein said second polymer block comprises a plurality of constitutional units that correspond to a methacrylate monomer.

16. The copolymer of claim 8, wherein said polymer comprises two or more of said second polymer blocks and two or more of said linking moieties.

17. The copolymer of claim 8, wherein said copolymer is a linear copolymer.

18. The copolymer of claim 8, wherein said copolymer is a radial-shaped copolymer.

19. A method comprising:

(a) contacting under reaction conditions a double diphenylethylene compound with a polymer that comprises a carbocationically terminated chain, said chain further comprising a plurality of constitutional units that correspond to cationically polymerizable monomer species, thereby providing a 1,1-diphenylene end-functionalized chain; and

(b) contacting under reaction conditions said 1,1-diphenylene end-functionalized chain with an alkylating agent, thereby providing an alkylated 1,1-diphenylene end-functionalized chain.

20. The method of claim 19, wherein said alkylating agent is an alkylaluminum compound or an alkylzinc compound.
21. The method of claim 19, wherein said alkylating agent is dimethyl-zinc.
22. The method of claim 19, wherein said double diphenylethylene compound is 1,4-*bis*(1-phenylethenyl)benzene.
23. The method of claim 19, further comprising contacting, under reaction conditions, an organolithium compound with said alkylated 1,1-diphenylene end-functionalized polymer, thereby providing an anionically terminated polymer.
24. The method of claim 23, wherein said organolithium compound is of the formula RLi in which R is a hydrocarbon group containing from 1 to 20 carbon atoms per molecule selected from alkyl groups, aryl groups, and alky-aryl groups.
25. The method of claim 23, wherein said organolithium compound is selected from methyllithium, ethyllithium, isopropyllithium, *n*-butyllithium, *sec*-butyllithium, *tert*-butyllithium, *tert*-octyllithium, phenyllithium, 1-naphthyllithium, *p*-tolyllithium, cyclohexyllithium, and 4-cyclohexylbutyllithium.
26. The method of claim 23, further comprising combining a 1,1-diphenylorganolithium compound with said alkylated 1,1-diphenylene end-functionalized polymer prior to contact with said organolithium compound.
27. The method of claim 26, wherein the 1,1-diphenylorganolithium compound is of the formula $RC(\emptyset)_2Li$ in which R is a hydrocarbon group containing 1 to 20 carbon atoms per molecule and \emptyset is an unsubstituted or substituted aryl group.
28. The method of claim 23, wherein the 1,1-diphenylorganolithium compound is 1,1-diphenylhexyllithium or 1,1-diphenyl-4-methylpentyllithium.

29. The method of claim 23, further comprising contacting under reaction conditions said anionically terminated polymer with anionically polymerizable monomer species.

30. The method of claim 29, wherein said cationically polymerizable monomer species are isoolefin monomer species and wherein said anionically polymerizable monomer species are methacrylate monomer species.

31. A copolymer comprising:

(a) a first polymer block that comprises a plurality of constitutional units that correspond to isobutylene; and

(b) a second polymer block that comprises a plurality of constitutional units that correspond to hydroxyethyl methacrylate.

32. The copolymer of claim 31, wherein said second polymer block comprises a plurality of constitutional units that correspond to hydroxyethyl methacrylate and a plurality of constitutional units that correspond to methyl methacrylate.

33. The copolymer of claim 31, wherein said first polymer block is a polyisobutylene block and said second polymer block is a poly(hydroxyethyl methacrylate) polymer block.

34. The copolymer of claim 31, wherein said first polymer block is a polyisobutylene block and wherein said second polymer block contains, arranged within said second block in a random fashion, a plurality of constitutional units that correspond to hydroxyethyl methacrylate and a plurality of constitutional units that correspond to methyl methacrylate.